

to the nucleotide sequences encoding the present polypeptides. Substitutes for an amino acid within the fundamental polypeptide amino acid sequences discussed herein can be selected from other members of the class to which the naturally occurring amino acid belongs. Amino acids can be divided into the following four groups: (1) acidic amino acids; (2) basic amino acids; (3) neutral polar amino acids; and (4) neutral non-polar amino acids. Representative amino acids within these various groups include, but are not limited to: (1) acidic (negatively charged) amino acids such as aspartic acid and glutamic acid; (2) basic (positively charged) amino acids such as arginine, histidine, and lysine; (3) neutral polar amino acids such as glycine, serine, threonine, cysteine, tyrosine, asparagine, and glutamine; and (4) neutral nonpolar (hydrophobic) amino acids such as alanine, leucine, isoleucine, valine, proline, phenylalanine, tryptophan, and methionine. --

IN THE CLAIMS:

Please cancel claims 29 and 30.

Please add the following claims:

45. (new) A transformed plant, a plastid of which comprises:
- (a) a polypeptide encoded by a nucleotide sequence encoding a branched chain oxoacid dehydrogenase complex E1 α subunit protein, said nucleotide sequence selected from the group consisting of:
- (i) the nucleotide sequence shown in SEQ ID NO:11, or the complement thereof;
- (ii) a nucleotide sequence that hybridizes to said nucleotide sequence of (i) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS, at 55-65°C, and which encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E1 α subunit by about 30% or less;

- (iii) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (i), but which is degenerate in accordance with the degeneracy of the genetic code; and
- (iv) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (ii), but which is degenerate in accordance with the degeneracy of the genetic code;
- (b) a polypeptide encoded by a nucleotide sequence encoding a branched chain oxoacid dehydrogenase complex E1 β subunit protein, said nucleotide sequence selected from the group consisting of:
- (i) the nucleotide sequence shown in SEQ ID NO:13, or the complement thereof;
- (ii) a nucleotide sequence that hybridizes to said nucleotide sequence of (i) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS, at 55-65°C, and which encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E1 β subunit by about 30% or less;
- (iii) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (i), but which is degenerate in accordance with the degeneracy of the genetic code; and
- (iv) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (ii), but which is degenerate in accordance with the degeneracy of the genetic code;
- (c) a polypeptide encoded by a nucleotide sequence encoding a branched chain oxoacid dehydrogenase complex E2 component protein, said nucleotide sequence selected from the group consisting of:
- (i) the nucleotide sequence shown in SEQ ID NO:15, or the complement thereof;
- (ii) a nucleotide sequence that hybridizes to said nucleotide sequence of (i) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS, at 55-65°C, and which encodes a polypeptide having enzymatic activity differing from that of

Arabidopsis thaliana branched chain 2-oxoacid dehydrogenase complex E2 subunit by about 30% or less;

(iii) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (i), but which is degenerate in accordance with the degeneracy of the genetic code; and

(iv) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (ii), but which is degenerate in accordance with the degeneracy of the genetic code; and

(d) a polypeptide encoded by a nucleotide sequence encoding an enzyme that enhances the biosynthesis of 2-oxobutyrate.

46. (new) The plant of claim 45, wherein:

(a) the nucleotide sequence in (a)(ii) encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E1 α subunit by about 20% or less;

(b) the nucleotide sequence in (b)(ii) encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E1 β subunit by about 20% or less; and

(c) the nucleotide sequence in (c)(ii) encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E2 component by about 20% or less.

47. (new) The plant of claim 45, wherein:

(a) the nucleotide sequence in (a)(ii) encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E1 α subunit by about 10% or less;

- Sabu C.*
- (b) the nucleotide sequence in (b)(ii) encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E1 β subunit by about 10% or less; and
- (c) the nucleotide sequence in (c)(ii) encodes a polypeptide having enzymatic activity differing from that of *Arabidopsis thaliana* branched chain 2-oxoacid dehydrogenase complex E2 component by about 10% or less.

B2
Cut 48. (new) The plant of claim 45, wherein:

- (a) the wash stringency of (a)(ii) is equivalent to 0.5X SSC to 1.0X SSC, 0.1% SDS, at 55°C;
- (b) the wash stringency of (b)(ii) is equivalent to 0.5X SSC to 1.0X SSC, 0.1% SDS, at 55°C; and
- (c) the wash stringency of (c)(ii) is equivalent to 0.5X SSC to 1.0X SSC, 0.1% SDS, at 55°C.

49. (new) The plant of claim 45, wherein:

- (a) the wash stringency of (a)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 55°C;
- (b) the wash stringency of (b)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 55°C; and
- (c) the wash stringency of (c)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 55°C.

50 (new) The plant of claim 45, wherein:

- (a) the wash stringency of (a)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 60°C;
- (b) the wash stringency of (b)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 60°C; and
- (c) the wash stringency of (c)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 60°C.

51. (new) The plant of claim 45, wherein:

- (a) the wash stringency of (a)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 65°C;
- (b) the wash stringency of (b)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 65°C; and

(c) the wash stringency of (c)(ii) is equivalent to 0.1X SSC, 0.1% SDS, at 65°C.

52. (new) The plant of claim 45, wherein

- (a) the nucleotide sequence encoding a branched chain oxoacid dehydrogenase complex E1 α subunit protein is SEQ ID NO: 11;
- (b) the nucleotide sequence encoding a branched chain oxoacid dehydrogenase complex E1 β subunit protein is SEQ ID NO: 13;
- (c) the nucleotide sequence encoding a branched chain oxoacid dehydrogenase complex E2 component protein, is SEQ ID NO: 15; and
- (d) the nucleotide sequence encoding an enzyme that enhances the biosynthesis of 2-oxobutyrate is selected from the group of nucleotide sequences consisting of those that encode aspartate kinase, homoserine dehydrogenase, threonine synthase, and threonine deaminase.

53. (new) The plant of claim 52, wherein the enzyme that enhances the biosynthesis of 2-oxobutyrate is aspartate kinase.

54. (new) The plant of claim 52, wherein the enzyme that enhances the biosynthesis of 2-oxobutyrate is homoserine dehydrogenase.

55. (new) The plant of claim 52, wherein the enzyme that enhances the biosynthesis of 2-oxobutyrate is threonine synthase.

56. (new) The plant of claim 52, wherein the enzyme that enhances the biosynthesis of 2-oxobutyrate is threonine deaminase.

57. (new) The plant of claim 45, wherein the plant is a monocot.

58. (new) The plant of claim 52, wherein the plant is a monocot.

59. (new) The plant of claim 45, wherein the plant is a dicot.

60. (new) The plant of claim 52, wherein the plant is a dicot.

32 61. (new) The plant of claim 45, wherein the plastid is a seed plastid.

62. (new) The plant of claim 52, wherein the plastid is a seed plastid.

Sub 63. (new) The plastid of claim 61, wherein the seed plastid is a leucoplast.

64. (new) The plastid of claim 62, wherein the seed plastid is a leucoplast.

65. (new) The plant of claim 45, wherein the plastid is a leaf chloroplast.

66. (new) The plant of claim 52, wherein the plastid is a leaf chloroplast.

67. (new) The plant of claim 45, wherein the plant is *Arabidopsis*.

68. (new) The plant of claim 52, wherein the plant is *Arabidopsis*.